Claims

1. A method for protecting a progenitor cell against a cytotoxic agent comprising contacting the progenitor cell with a FRIL family member molecule and the cytotoxic agent, wherein the contacted progenitor cell is protected against cytotoxicity by the cytotoxic agent.

2. The method of claim 1, wherein the FRIL family member molecule is purified.

3. The method of claim 1, wherein the progenitor cell is in a tissue.

4. The method of claim 1, wherein the progenitor cell is a hematopoietic progenitor cell.

5. The method of claim 1, wherein the progenitor cell is selected from the group consisting of a messenchymal progenitor cell, a hematopoietic stem cell, a hair follicle progenitor cell, a skin progenitor cell, a liver progenitor cell, and a gastrointestinal progenitor cell.

6. The method of claim 1, wherein the progenitor cell is in an animal.

7. The method of claim 6, wherein the progenitor cell is contacted by administering the FRIL family member molecule to the animal.

8. The method of claim 7, wherein the FRIL family member molecule is administered to the animal with a pharmaceutically acceptable carrier.

9. The method of claim 6, wherein the animal is a human.

10. The method of claim 1, wherein the cytotoxic agent is selected from the group consisting of a chemotherapeutic and a radiotherapeutic.

11. The method of claim 1, wherein the progenitor cell is contacted with the FRIL family member molecule before the cell is contacted with the cytotoxic agent.

12. A method for protecting a progenitor cell in a patient against a progenitor cell-depleting activity of a therapeutic treatment in a patient, comprising administering a therapeutically effective amount of a FRIL family member molecule to the patient with the therapeutic treatment, wherein the progenitor cell in the patient is protected against the progenitor cell-depleting activity of the therapeutic treatment.

13. The method of claim 12, wherein the patient is human.

14. The method of claim 12, wherein the patient has cancer.

15. The method of claim 12, wherein the therapeutic treatment is selected from the group

consisting of a radiotherapeutic, a chemotherapeutic, and a combination of a radiotherapeutic and a chemotherapeutic.

16. The method of claim 15, wherein the chemotherapeutic is selected from the group consisting of cytarabine, doxorubicin, cisplatin, daunorubicin, paclitaxel, cyclophosphamide, and 5-fluorouracil.

17. The method of claim 12, wherein the FRIL family member molecule is purified.

18. The method of claim 12, wherein the FRIL family member molecule is administered to the patient with a pharmaceutically acceptable carrier.

19. The method of claim 12, wherein the patient is administered the FRIL family member molecule before administration to the patient of the therapeutic treatment.

20. The method of claim 12, wherein the patient is administered the FRIL family member molecule after administration to the patient of the therapeutic treatment.

21. A method for isolating a cell for repairing a tissue comprising contacting a population of cells with a FRIL family member molecule and isolating a cell specifically bound by the FRIL family member molecule, wherein the cell bound to the FRIL family member molecule is useful for repairing a tissue.

22. The method of claim 21, wherein the population of cells includes a progenitor cell.

23. The method of claim 21, wherein the population of cells is from a human.

24. The method of claim 21, wherein the cell bound by the FRIL family member molecule is a progenitor cell.

25. The method of claim 21, wherein the progenitor cell is selected from the group consisting of a messenchymal progenitor cell, a hematopoietic stem cell, a hair follicle progenitor cell, a skin progenitor cell, a liver progenitor cell, and a gastrointestinal progenitor cell.

26. The method of claim 21, wherein the population of cells is selected from the group consisting of whole blood, umbilical cord blood, fetal liver cells, and bone marrow cells.